

SHIVPRIYA TEXCHEM · KNOWLEDGE SERIES

Yarn Count Systems. Ne, Nm, Tex and Denier without the confusion.

Four systems, two opposite logics, and an industry that switches between them mid-sentence. Getting count wrong is the most expensive clerical error in the yarn trade. This is how the systems work, how they convert, and how to quote without ambiguity.

2

fundamentally opposite logics — direct and indirect

590.5

the constant that converts between Ne and Tex

TM

the twist figure that only means anything alongside the count

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CHAPTER 01

Two opposite ways of counting

Every count system answers one of two questions: how much length is in a fixed weight, or how much weight is in a fixed length. Everything else follows, including the maddening fact that in one system a bigger number is a finer yarn and in the other it is coarser.

LOGIC	THE QUESTION	CONSEQUENCE
Indirect	Length per unit weight	Higher number = finer yarn. Used by Ne and Nm
Direct	Weight per unit length	Higher number = coarser yarn. Used by Tex and Denier

INDIRECT SYSTEMS	DIRECT SYSTEMS	WHERE EACH RULES
Ne — cotton count	Tex	Ne — cotton, India
Nm — metric count	Denier	Nm — wool, Europe
Higher = finer	Higher = coarser	Denier — filament
		Tex — technical, SI

The trap in one line. 40s Ne is a **fine** yarn. 40 denier is a **fine** yarn. 400 denier is coarse, and 4s Ne is coarse. The direction of the scale flips between systems, and reading a number without knowing its system is meaningless.

CHAPTER 02

What each one actually measures

Each system was defined by the trade that created it, using whatever length and weight units that trade already worked in. The apparent arbitrariness is historical, not technical.

SYSTEM	DEFINITION	WHERE IT IS USED
Ne	Hanks of 840 yd per pound	Cotton and cotton-type spun yarn. The default across the Indian trade
Nm	Metres per gram	Wool, worsted and much of European spun yarn
Tex	Grams per 1,000 metres	The SI system. Technical textiles, testing and academic work
Denier	Grams per 9,000 metres	Filament yarn — POY, FDY, DTY, nylon and silk
dtex	Grams per 10,000 metres	Decitex; increasingly standard for man-made staple and filament

Why 840 yards

The traditional cotton hank.
 Historical, not rational, and now permanent.

Why 9,000 metres

Inherited from silk, where a 9,000 m skein was the trading unit.

Why Tex exists

A deliberate attempt to impose one coherent SI system on the whole industry.

Why Tex did not win

Ne and denier were already embedded in pricing, contracts and habit.

CHAPTER 03

The conversions worth memorising

Four relationships cover almost every conversion you will need on a trading floor. They are worth committing to memory rather than looking up.

FROM → TO	FORMULA	WORKED EXAMPLE
Ne → Tex	$\text{Tex} = 590.5 \div \text{Ne}$	30s Ne → 19.7 Tex
Tex → Ne	$\text{Ne} = 590.5 \div \text{Tex}$	20 Tex → 29.5s Ne
Nm → Tex	$\text{Tex} = 1000 \div \text{Nm}$	Nm 50 → 20 Tex
Denier → Tex	$\text{Tex} = \text{Denier} \div 9$	150 D → 16.7 Tex
Tex → Denier	$\text{Denier} = \text{Tex} \times 9$	20 Tex → 180 D
Ne → Nm	$\text{Nm} = \text{Ne} \times 1.693$	30s Ne → Nm 50.8

One number to remember. If you remember only one constant, make it **590.5**. Ne to Tex and back covers the majority of conversions in Indian spun yarn trading, and everything else can be reached through Tex.

CHAPTER 04

Counting folded yarn

Ply notation is where count confusion becomes commercially dangerous, because the two readings differ by a factor of two and both look plausible on an order.

WRITTEN AS	RESULTANT	HOW TO READ IT
2/60s Ne	30s Ne	Two 60s singles plied. Indirect system: resultant is roughly half
60s/2 Ne	30s Ne	The same yarn in the reversed Indian convention
30s/2 Ne	15s Ne	Two 30s singles — a very different, much coarser yarn
2 × 150 D	300 D	Direct system: resultant is roughly the sum, not the half
R 20 Tex/2	40 Tex	Direct system again — resultant doubles

Indirect halves, direct doubles. In Ne and Nm, plying two ends **halves** the resultant count number. In Tex and denier, plying **doubles** it. Same physical yarn, opposite arithmetic — and the source of most ply quotation disputes.

CHAPTER 05

Why twist needs the count to mean anything

Turns per inch is not a specification. The same TPI produces a soft yarn at one count and a hard, lifeless one at another. Twist multiplier exists to fix exactly this.

01 TPI alone is meaningless

20 TPI on 10s is very soft. 20 TPI on 60s is hard and over-twisted.

03 It is comparable across counts

TM 3.6 means the same character at 20s as at 60s. That is the whole point.

05 Other systems have equivalents

Metric and Tex twist factors exist. Confirm which convention a quotation uses.

02 TM normalises it

Twist multiplier is TPI divided by the square root of the count in Ne.

04 Each end use has a TM band

Knitting sits low, weaving warp sits high, crepe sits far above both.

END USE	TYPICAL TM (NE)	CHARACTER
Hosiery / knitting weft	2.8 – 3.2	Soft, extensible, low torque
Knitting, general	3.2 – 3.6	The working band for most jersey
Weaving weft	3.4 – 3.8	Moderate; handle matters more than strength
Weaving warp	3.8 – 4.4	Must survive sizing, shedding and reed abrasion
Voile / crepe	5.0 and above	Deliberately lively — the twist is the fabric effect

CHAPTER 06

How count is actually determined

Count is measured, not declared. The method is simple, and the discipline around sampling and conditioning is what makes the result trustworthy.



Conditioning matters — moisture regain changes weight and therefore count

01 Wrap a known length

A wrap reel produces a lea or skein of defined length from the package.

03 Weigh accurately

On a calibrated balance. Small weight errors become large count errors at fine counts.

05 Repeat and report CV

Count varies. A single reading is not a result — count CV is the meaningful number.

02 Condition it

Standard atmosphere — 20°C and 65% RH. Cotton regain is significant and must be standardised.

04 Calculate

Apply the system formula to convert length and weight into a count figure.

Regain is not a technicality. Cotton at standard regain carries around 8.5% moisture. Weighing an unconditioned sample can shift the apparent count by more than the commercial tolerance — **conditioning is part of the measurement**, not preparation for it.

CHAPTER 07

Count in a contract

Count is the basis of yarn pricing, so its tolerance, measurement method and reference conditions all belong in the contract rather than in the relationship.

CONTRACT POINT	WHY IT MATTERS
Nominal count and system	State both. “30s” without “Ne” is incomplete in an international contract
Count tolerance	Agree the acceptable deviation before spinning, not after delivery
Count CV limit	Mean count within tolerance with poor CV still weaves and knits badly
Conditioning basis	Standard atmosphere, stated. This removes the commonest testing dispute
Test method	Which standard, how many leas, sampled from how many packages
Resultant vs component	For ply yarn, in numerals, agreed in writing by both parties

Yarn is sold by weight and specified by count. **Every gram of ambiguity in the count is money** moving in one direction or the other.

CHAPTER 08

Count and fabric — what it decides

Count is not just a trading unit. Together with twist and construction it decides the weight, cover and handle of the finished fabric.

FABRIC	TYPICAL COUNT	WHY
Denim	7s – 16s Ne	Heavy fabric needs coarse yarn; weight is the product
Bedsheet	30s – 60s Ne	Fine enough for a smooth face, coarse enough to be durable
Shirting	40s – 100s Ne	Fineness gives drape, cover and a crisp handle
T-shirt jersey	20s – 40s Ne	Balances softness, cover and knitting productivity
Fine voile	80s – 120s Ne	Very fine and high twist for an open, crisp, dry fabric
Furnishing	10s – 20s Ne	Coarse yarn for body, cover and abrasion resistance

Count sets the floor on fabric weight. You cannot make a light fabric from a coarse yarn without opening the construction so far that it loses cover. **Count comes before construction** in fabric design, not after it.

CHAPTER 09

Quoting and buying without ambiguity

Almost all count-related disputes are preventable with a few words on the order. These are the ones worth insisting on.

01 Always name the system

Write “30s Ne”, not “30s”. In an export contract this is not optional.

02 State resultant count for ply

In numerals, explicitly agreed. The single biggest source of ply disputes.

03 Give twist as TM with direction

TPI alone does not specify a yarn. TM plus S or Z does.

04 Agree tolerance and CV

Both the mean deviation and the variation limit, before the lot is spun.

05 Fix the conditioning basis

Standard atmosphere, stated on the order, so both labs measure the same thing.

06 Convert once, in writing

If the buyer works in Tex and the mill in Ne, put both figures on the order and sign off on them.

How Shivpriya reads it. We put **count, system, resultant count, TM and direction on every enquiry** before a price is discussed. It takes one extra line and it removes the entire category of disputes that arrive after delivery, when nothing can be fixed cheaply.

IN CLOSING

Four systems. One yarn.

Count systems are the industry's oldest unresolved inconsistency, and they will not be resolved — so the answer is precision rather than reform. If you are quoting across markets or converting a specification between systems, talk to us and we will put both figures on the paper before anything is committed.

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